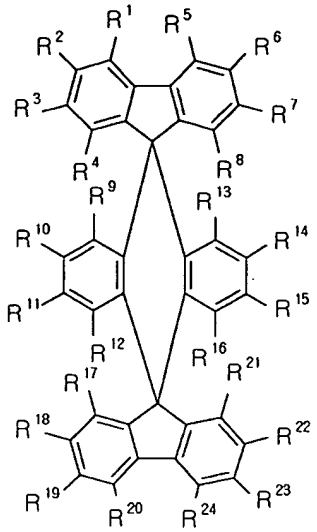
WHAT IS CLAIMED IS:

1. A chemical compound of Chemical Formula I:



Chemical Formula 1

wherein R1 through R24 are substituent groups, identical or different, and wherein not all of R1 through R24 are hydrogen.

2. The chemical compound of Claim 1, wherein one or more of R1-R24 are selected from the aryl group consisting of phenyl, biphenyl, terphenyl, benzyl, naphtyl, anthracyl, tetracenyl, pentacenyl, perylenyl, coronenyl, and heteroaryl, which are either substituted or unsubstituted.

3. The chemical compound of Claim 2, wherein the aryl groups are further substituted with one or more phenyl, biphenyl, terphenyl, benzyl, naphtyl, anthracyl, tetracenyl, pentacenyl, perylenyl, coronenyl or heteroaryl, which are either substituted or unsubstituted.

4. The chemical compound of Claim 1, wherein one or more of the R1-R24 are selected from the heteroaryl group consisting of thiophenyl, thiazolyl, oxazolyl, imidazolyl, and pyrazinyl, either substituted or unsubstituted.

5. The chemical compound of Claim 1, wherein one or more of R1-R24 are selected from the group consisting of amines with at least one aryl substituent and aryl including phenyl, biphenyl, terphenyl, benzyl, naphtyl, anthracyl, tetracenyl, pentacenyl, perylenyl, coronenyl and heteroaryl.

6. The chemical compound of Claim 1, wherein at least one of R1-R24 is

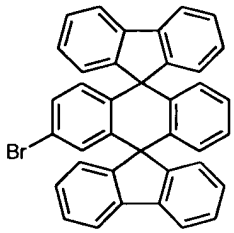
anthracene or heteroaryl.

7. The chemical compound of Claim 1, wherein the substituent groups R1 through R24 can be substituted by one or more organic moieties satisfying General Formula I.

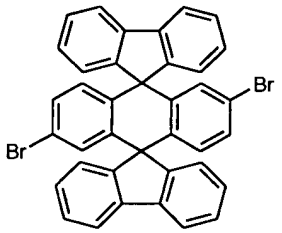
8. The chemical compound of Claim 1, wherein one or more of the R3, R7, R10, R11, R14, R15, R18, and R22 are substituted with non-hydrogen substituent groups.

9. The chemical compound of Claim 1, wherein one or more pairs of R3 and R7; R18 and R22; R10 and R15; and R11 and R14 are substituted with non-hydrogen substituent groups.

10. The chemical compound of Claim 1, wherein the compound is selected from the group consisting of Chemical Compounds 1-11, 100-137, 200-222, 300-308, and 400-413 as shown below, and wherein "Br" in Chemical Compounds 1, 2 and 5-7 may be substituted with another leaving group:



Chemical Compound 1



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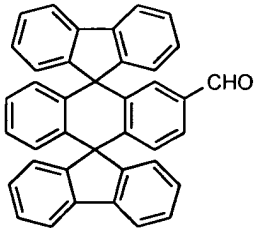
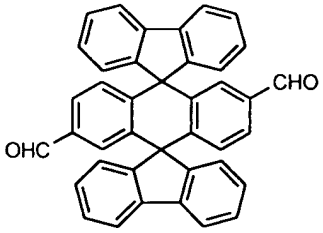


Chemical Compound 3



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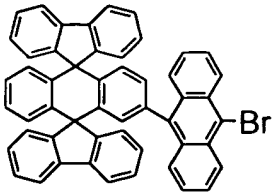

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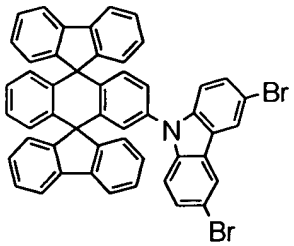

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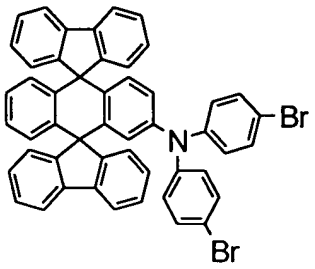

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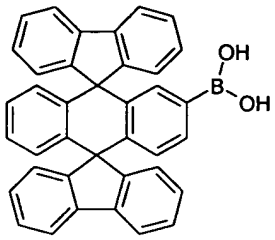

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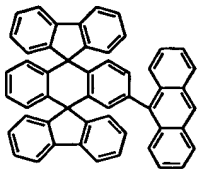

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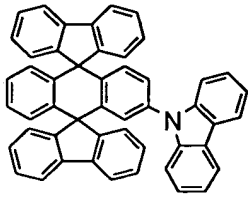

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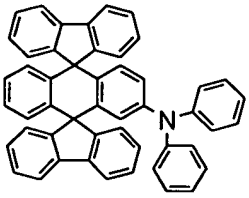

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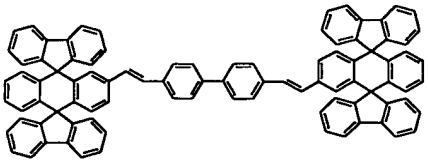

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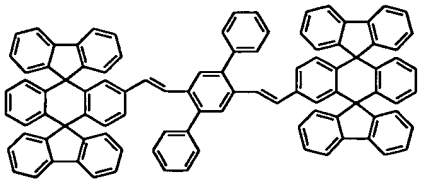

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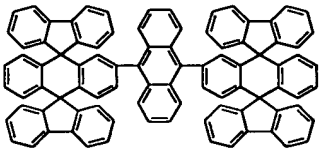

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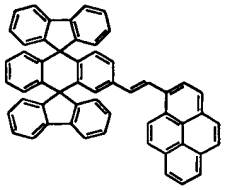

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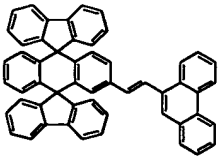

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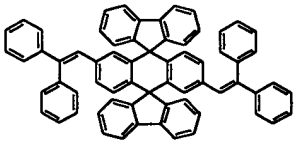

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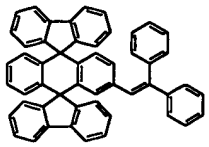

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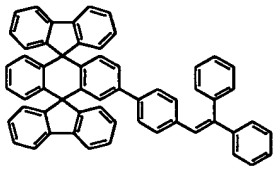

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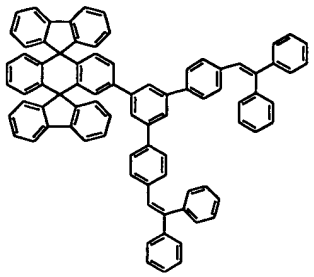

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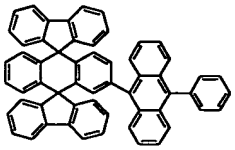

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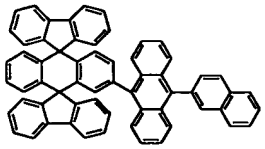

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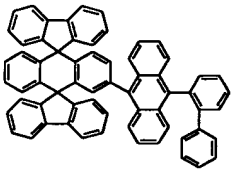

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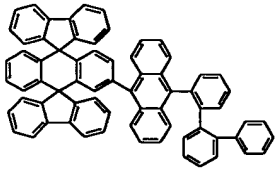

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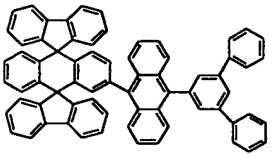

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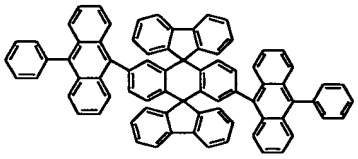

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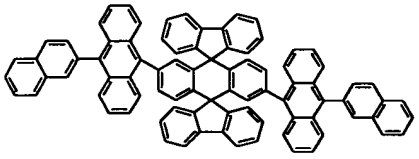

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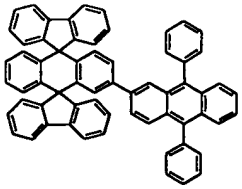

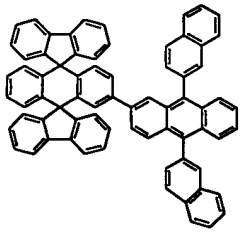

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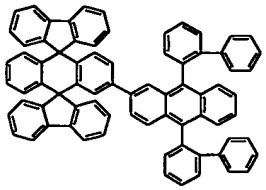

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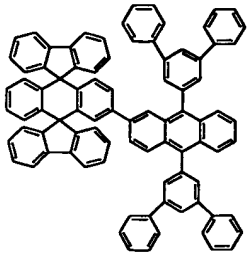

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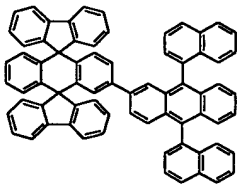

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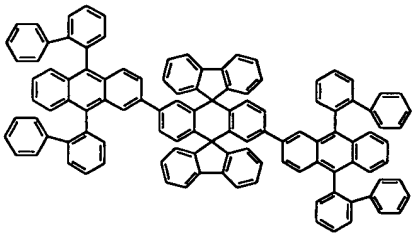

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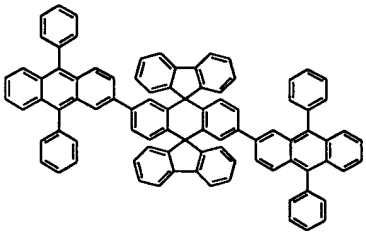

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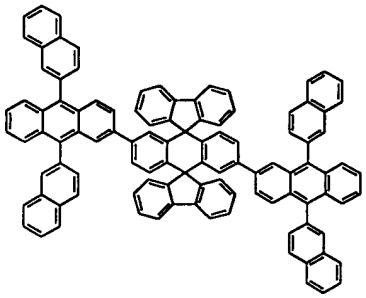

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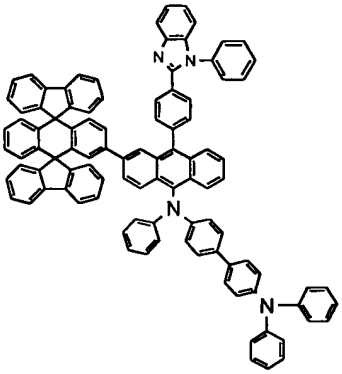

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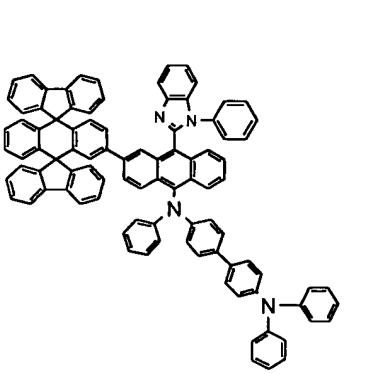
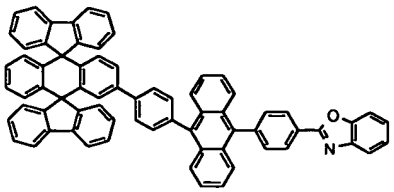


Chemical Compound 124

Chemical Compound 125



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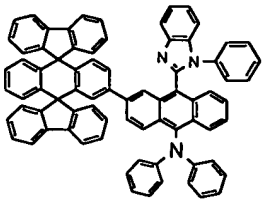

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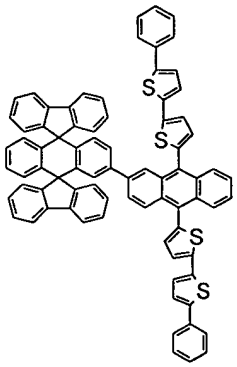

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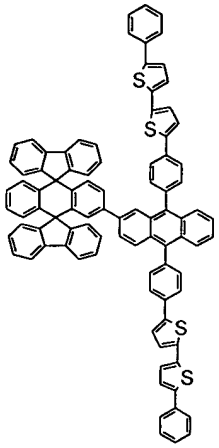

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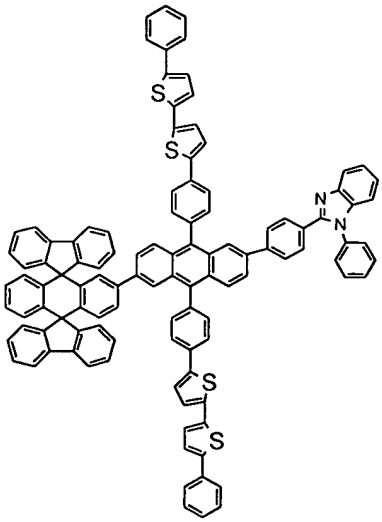

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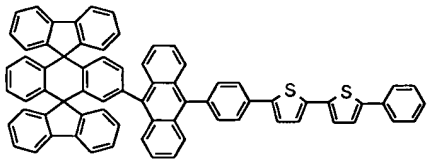

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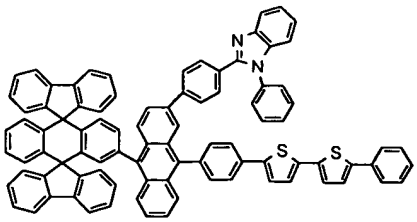

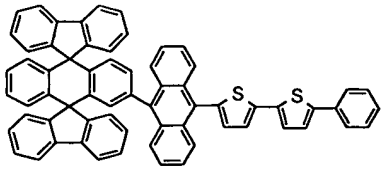

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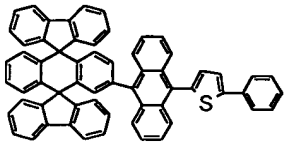

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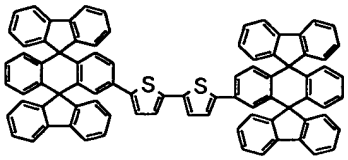

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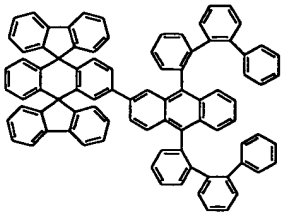

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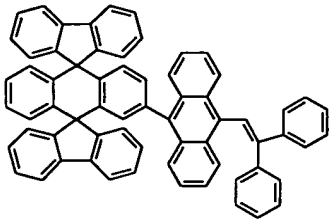

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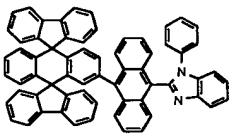

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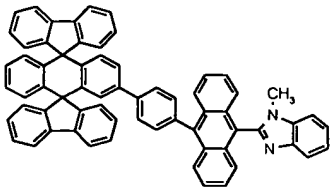
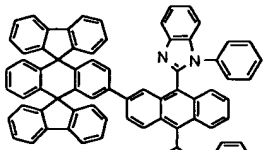


Chemical Compound 200



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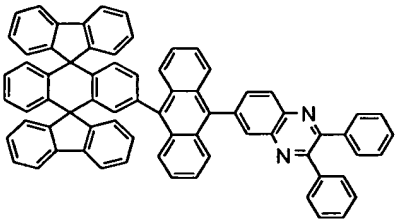

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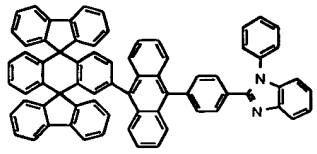

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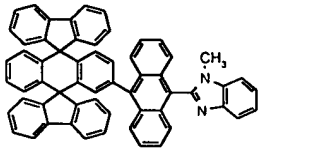
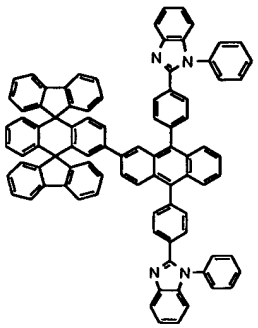


Chemical Compound 204

Chemical Compound 205



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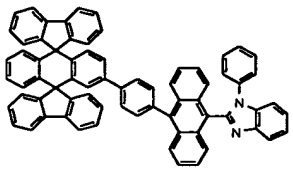

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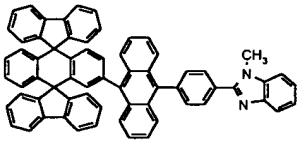

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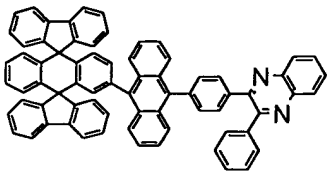

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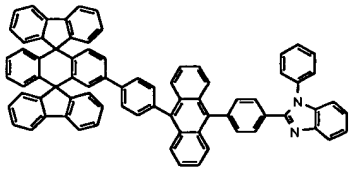

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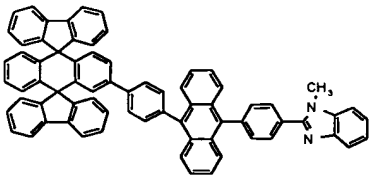

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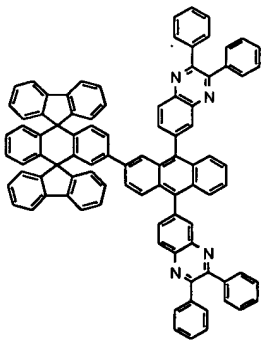

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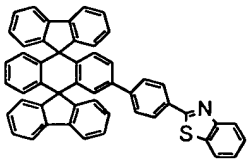

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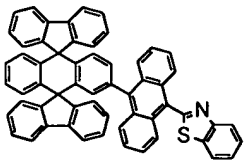

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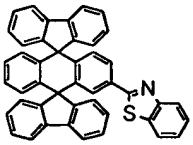

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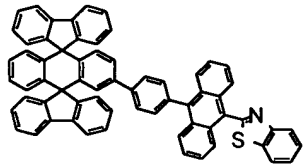

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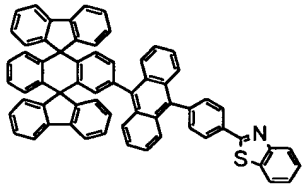

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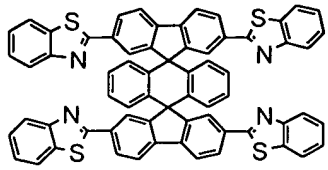

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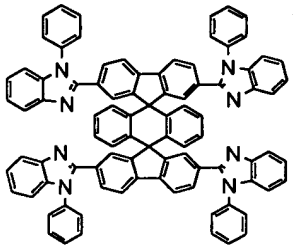

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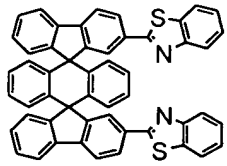

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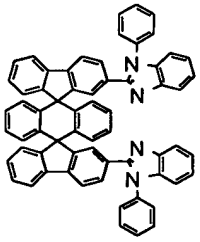

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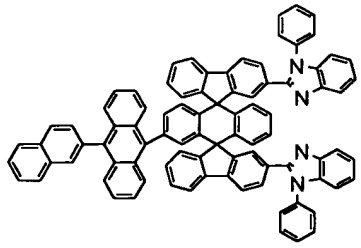

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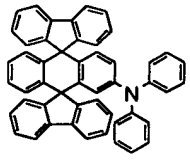
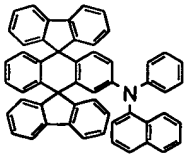


Chemical Compound 300



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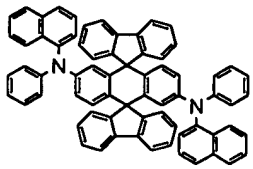

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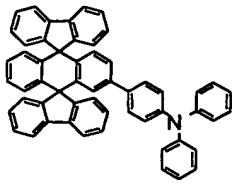

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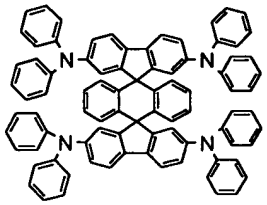

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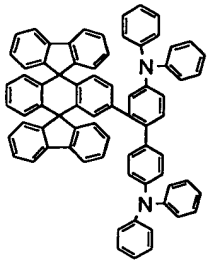

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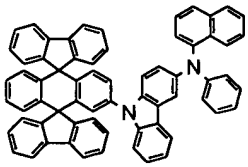

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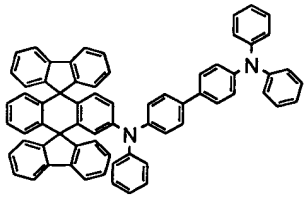

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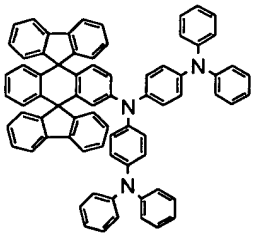

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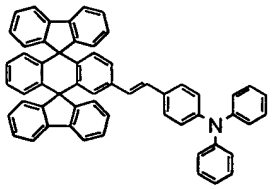

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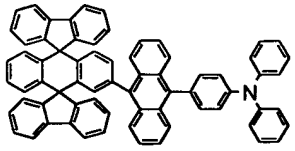

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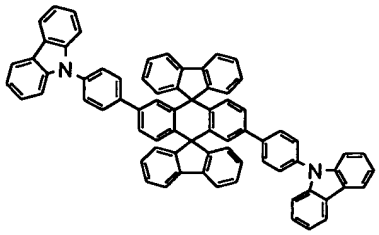

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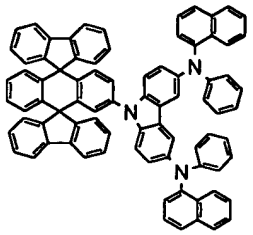

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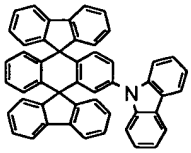

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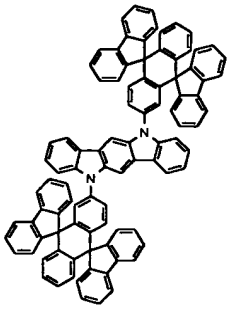

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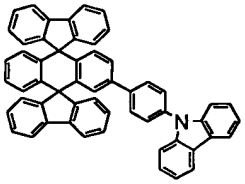

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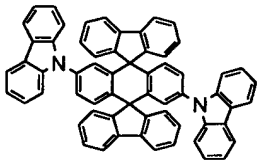

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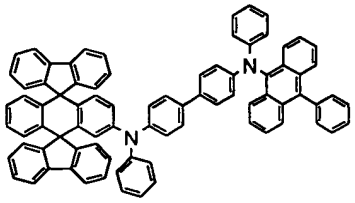

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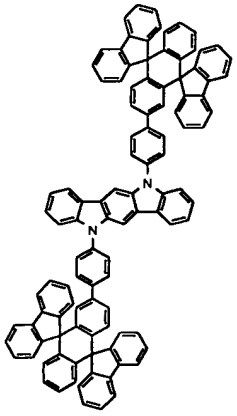

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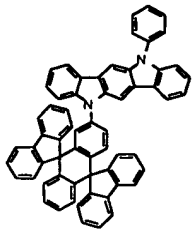
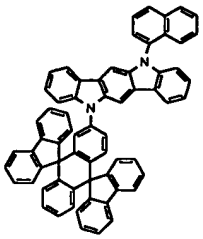
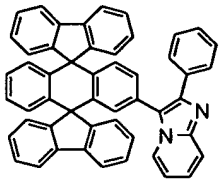


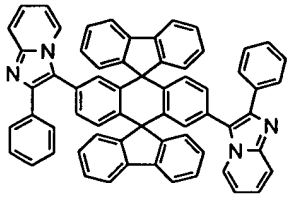
Chemical Compound 410



Chemical Compound 411



Chemical compound 412



Chemical Compound 413.

11. The chemical compound of Claim 1, wherein the compound has a melting point above about 300 °C.

12. The chemical compound of Claim 1, wherein the compound has a band-gap corresponding to visible light emission.

13. The chemical compound of Claim 12, wherein the band-gap for the visible light emission is from about 1.8 eV to about 3.5 eV.

14. The chemical compound of Claim 12, wherein the band-gap corresponds to blue, green or red light emission.

15. The chemical compound of Claim 1, wherein the compound has a hole-transporting property.

16. The chemical compound of Claim 1, wherein hole mobility in the compound is about $1x10^{-7}$ cm^2/Vs or greater.

17. The chemical compound of Claim 1, wherein the compound has an electron-transporting property.

18. The chemical compound of Claim 1, wherein electron mobility in the compound is about $1x10^{-7}$ cm^2/Vs or greater.

19. The chemical compound of Claim 1, wherein the compound has a hole-injecting property.

20. The chemical compound of Claim 1, wherein the compound has the highest occupied molecular orbital (HOMO) level from about -4.0 eV to about -6.0 eV.

21. The chemical compound of Claim 1, wherein the compound has an electron-injecting property.

22. The chemical compound of Claim 1, wherein the compound has the lowest unoccupied molecular orbital (LUMO) level from about -2.5 eV to about -4.0 eV.

23. A light-emitting material comprising one or more of the chemical compounds of Claim 1.

24. A light-emitting material of Claim 10, wherein the chemical compounds are selected from the group consisting of Chemical Compounds 100-137, 200-222, and 400-413.

25. A hole-transporting material comprising one or more of the chemical compounds of Claim 1.

26. A hole-transporting material of Claim 10, wherein the chemical compounds are selected from the group consisting of Chemical Compounds 300-308 and 400-413.

27. An electron-transporting material comprising one or more of the chemical compounds of Claim 1.

28. An electron-transporting material of Claim 10, wherein the chemical compounds are selected from the group consisting of Chemical Compounds 200-222.

29. A solid deposition of one or more chemical compounds for use in organic electroluminescence, wherein the one or more chemical compounds comprise one or more double-spiro compounds;

wherein the double-spiro compounds comprise at least three substantially planar organic moieties configured such that one planar moiety is interveningly located between the other two planar moieties and that the at least three planar moieties have substantially no overlap with one another;

wherein the intervening planar moiety shares an atom with each of the two neighboring planar moieties;

wherein the intervening planar moiety is substantially perpendicular to the two neighboring planar moieties;

wherein the at least three planar moieties may be the same or different from each other; and

wherein each of the planar moiety may be substituted with one or more non-planar moieties.

30. The solid deposition of Claim 29, wherein the one or more chemical compounds in the solid deposition are in an amorphous form.

31. The solid deposition of Claim 29, wherein the one or more chemical compounds further comprise one or more non-double-spiro compounds acceptable in organic electroluminescence.

32. The solid deposition of Claim 31, wherein the one or more non-double-spiro compounds comprise a light-emitting compound.

33. The solid deposition of Claim 32, wherein the non-double-spiro light-emitting compound has the band gap smaller than the band gap of the double-spiro compound.

34. The solid deposition of Claim 32, wherein the non-double-spiro light-emitting compound has the band gap greater than the band gap of the double-spiro compound.

35. The solid deposition of Claim 32, wherein the non-double-spiro light-emitting compound is either fluorescent or phosphorescent compound.

36. The solid deposition of Claim 29, wherein the solid deposition is in the form of a thin film.

37. The solid deposition of Claim 29, wherein the solid deposition comprises one or more layers.

38. The solid deposition of Claim 29, wherein the double-spiro compound has one or more properties selected from the group consisting of visible light emission, electron transportation, electron injection, hole transportation, and hole injection.

39. The solid deposition of Claim 29, wherein the atoms shared with the neighboring planar moieties are apart from each other in the intervening planar moieties.

40. The solid deposition of Claim 29, wherein two or more rings constitute at least one of the substantially planar moieties, and wherein the two or more rings are fused by sharing two or more atoms to form a substantially rigid plane.

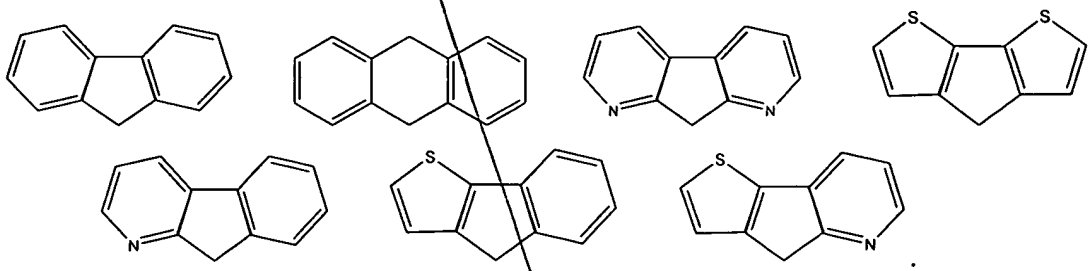
41. The solid deposition of Claim 29, wherein each planar moiety is isolated from conjugation with its neighboring planar moieties.

42. The solid deposition of Claim 29, wherein one or more of the planar moieties comprises a C3-C7 ring fused with one or more C4-C7 aromatic rings, and wherein one or more carbon atoms in the rings can be replaced by a heteroatom.

43. The solid deposition of Claim 29, wherein one or more of the planar moieties

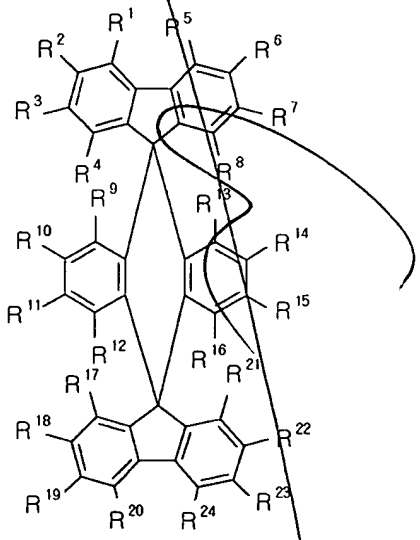
comprises a C5-C6 ring fused with one or more C5-C6 aromatic rings, and wherein one or more carbon atoms in the rings can be replaced by a heteroatom.

44. The solid deposition of Claim 29, wherein one or more of the planar moieties are selected from the group consisting of the following organic moieties:



45. The solid deposition of Claim 29, wherein the double-spiro compound has a melting point above about 300 °C.

46. The solid deposition of Claim 29, wherein the double-spiro compound satisfies Chemical Formula I:



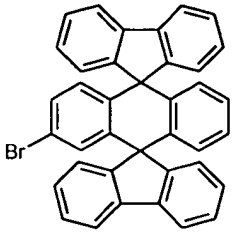
Chemical Formula 1

wherein R1 through R24 are substituent groups, and wherein R1 through R24 may be the same or different.

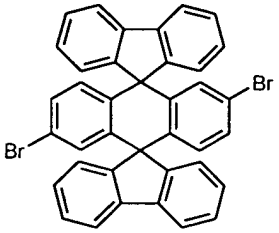
47. The solid deposition of Claim 46, wherein the R1 through R24 are one or more substituents selected from the group consisting of hydrogen atom, halogen atoms, substituted or unsubstituted alkyl groups having 1 to 18 carbon atoms, substituted or unsubstituted aryl groups having 6 to 24 carbon atoms, alkoxyl groups having 1 to 18 carbon

atoms, substituted or unsubstituted heterocyclic or heteroaryl groups, substituted vinyl groups, amino group, amine groups, nitrile groups, nitro groups, formyl group, alkanoyl groups, substituted or unsubstituted carbazoles, alkyl sulfide groups, and aryl sulfide groups.

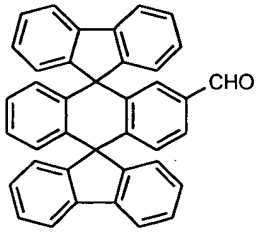
48. The solid deposition of Claim 29, wherein the double-spiro compound are selected from the group consisting of Chemical Compounds 1-12, 100-137, 200-222, 300-308, and 400-413 as shown below, and wherein "Br" in Chemical Compounds 1, 2 and 5-7 may be substituted with another leaving group:



Chemical Compound 1



Chemical Compound 2



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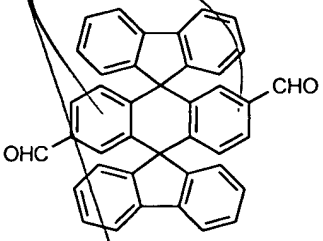

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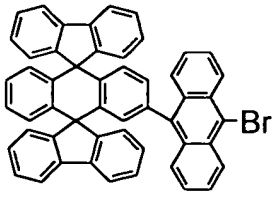

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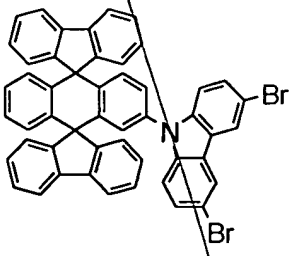

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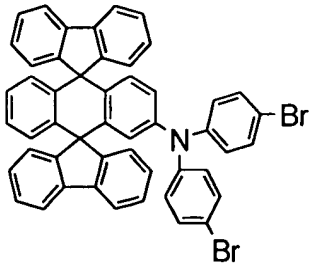
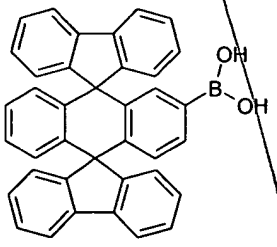


Chemical Compound 7



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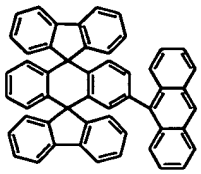

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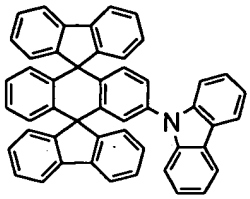

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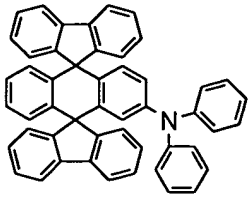

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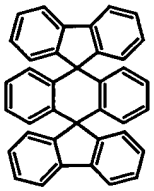

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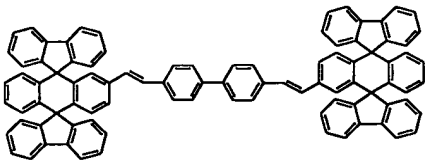

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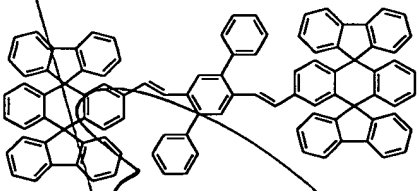

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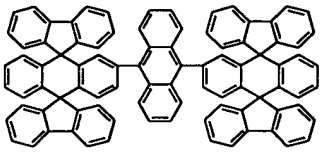

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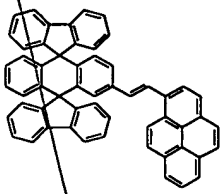

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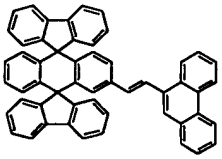

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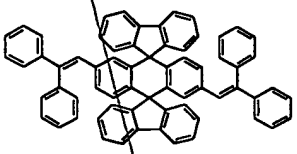

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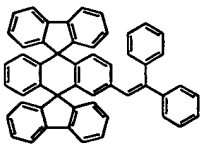

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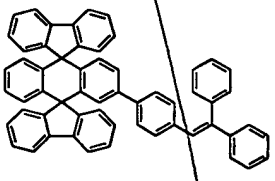

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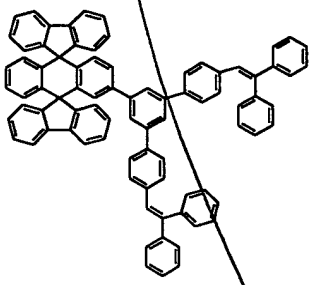

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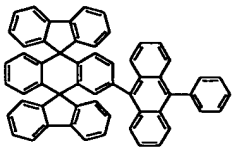

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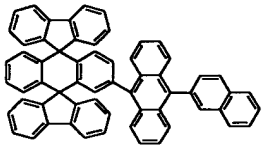

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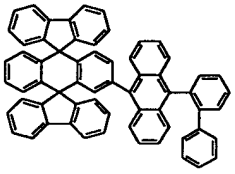

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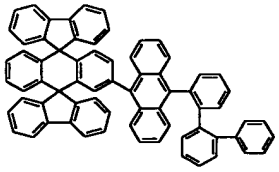

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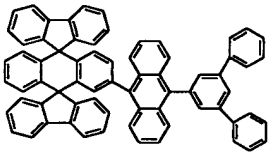

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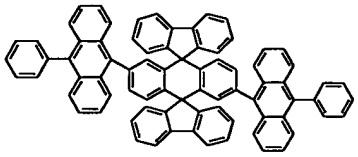

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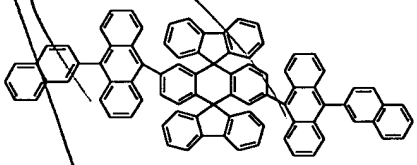

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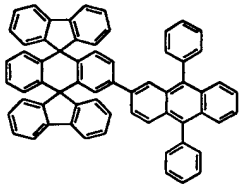

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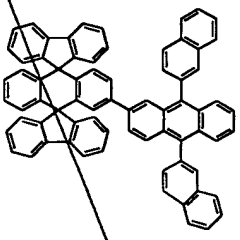

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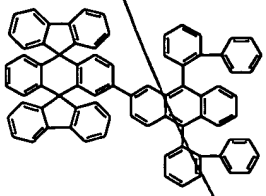

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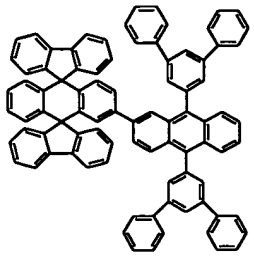

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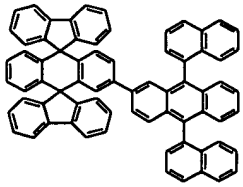

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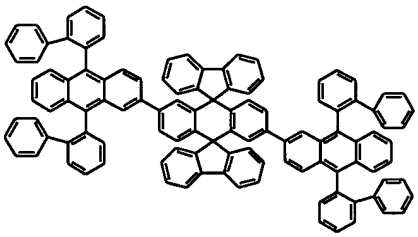

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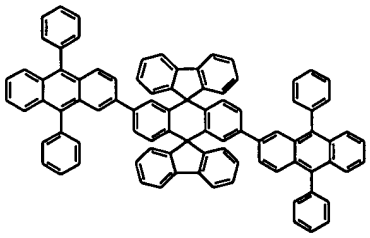

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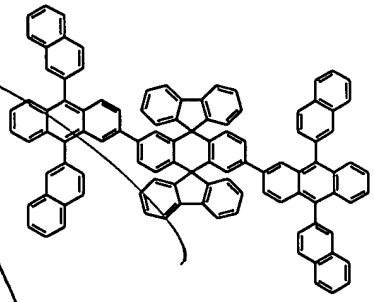

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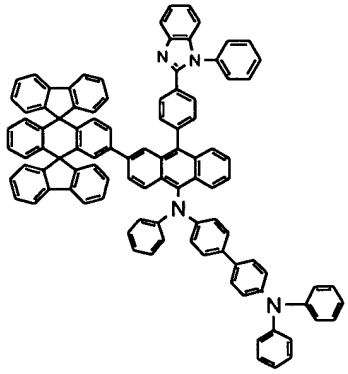

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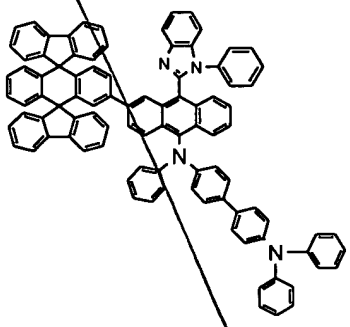

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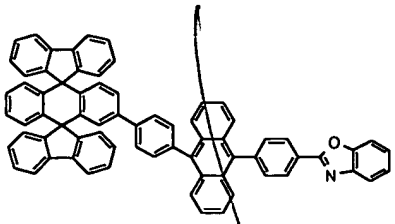

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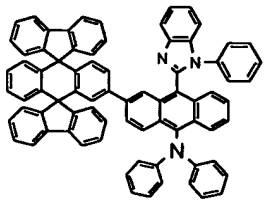

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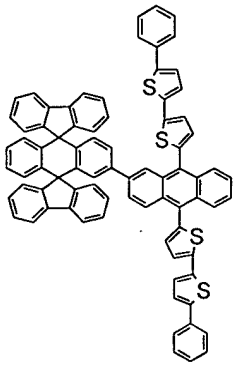

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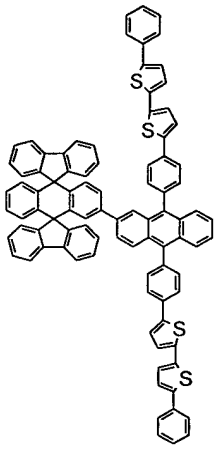

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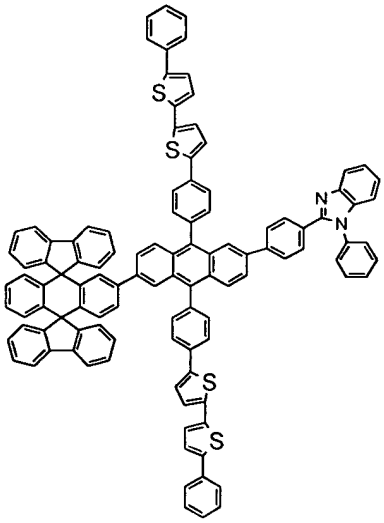

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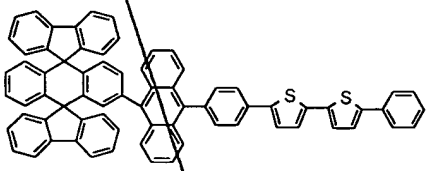

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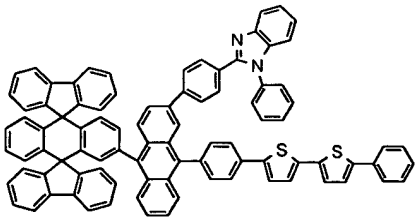

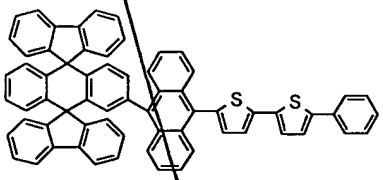

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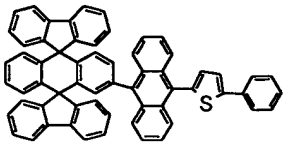

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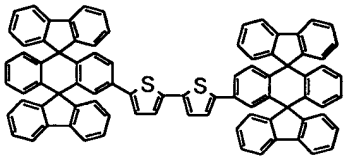

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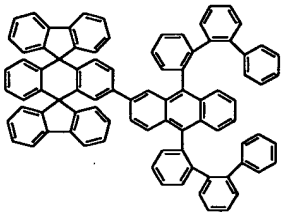

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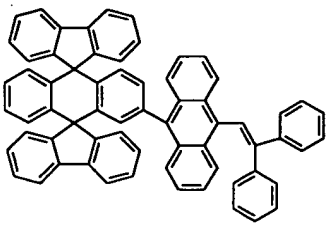

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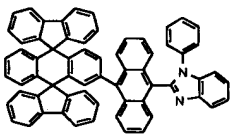

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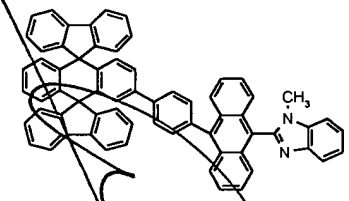

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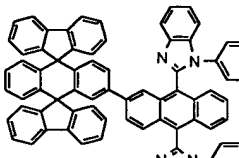
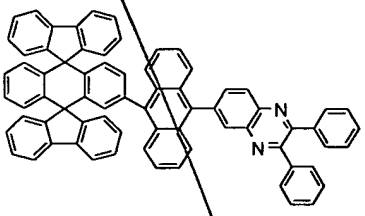


Chemical Compound 201

Chemical Compound 202

Chemical Compound 203



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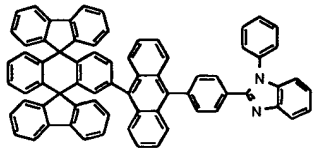

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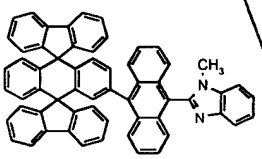

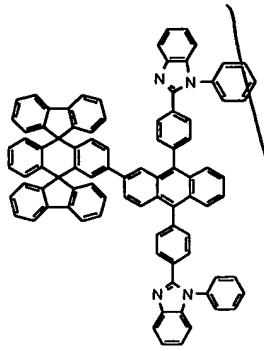

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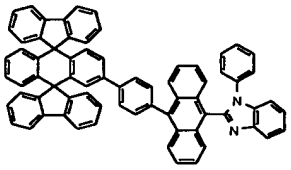

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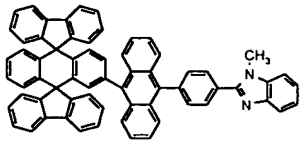

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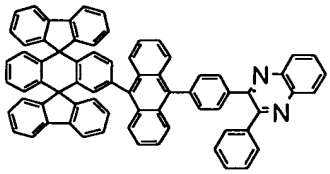

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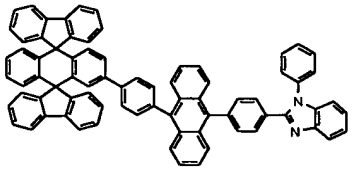

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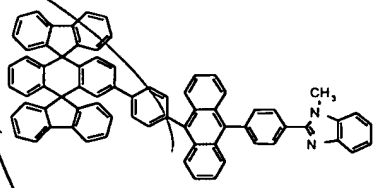

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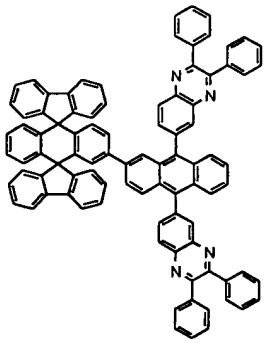

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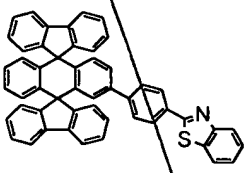

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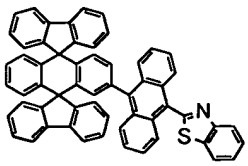

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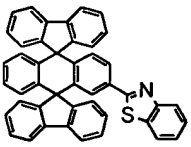
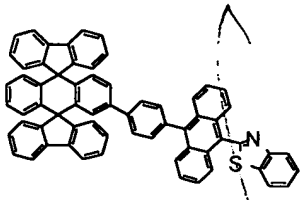


Chemical Compound 215



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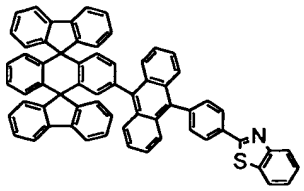

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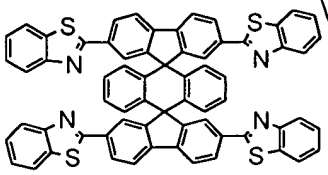

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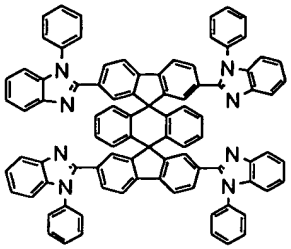

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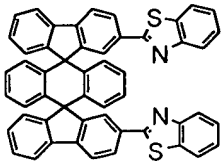

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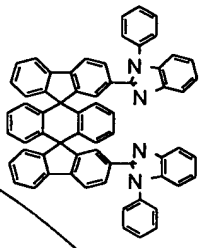

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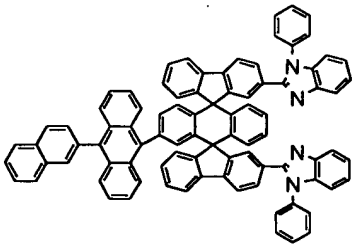
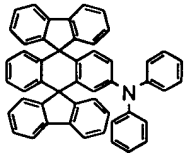
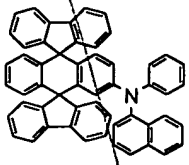


Chemical Compound 222



Chemical Compound 300



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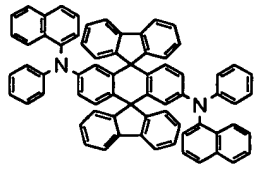

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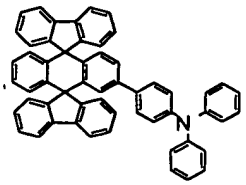
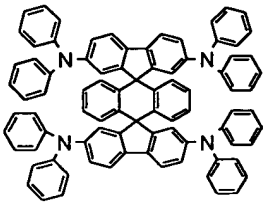


Chemical Compound 303



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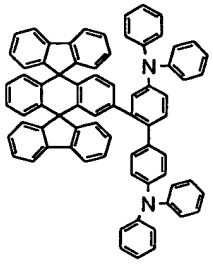

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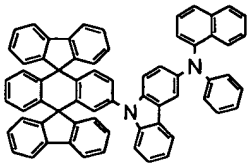

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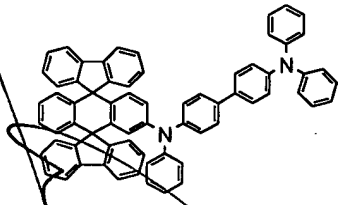

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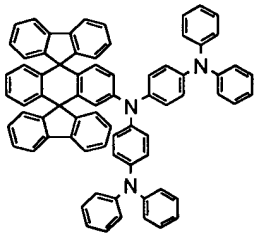
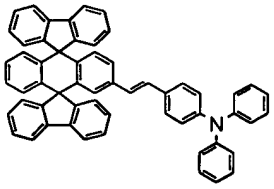
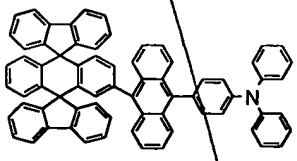


Chemical Compound 308



Chemical Compound 400



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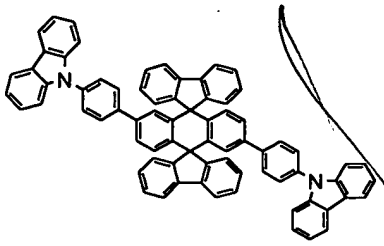

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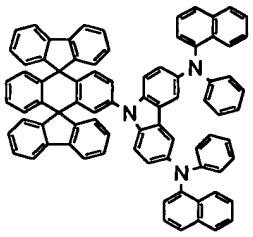

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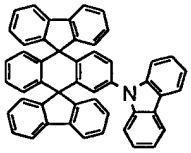

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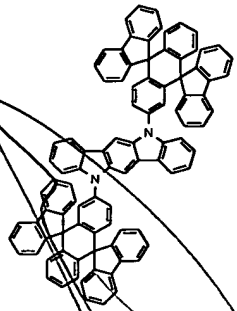

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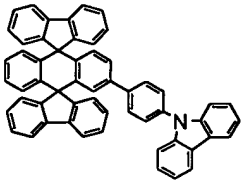

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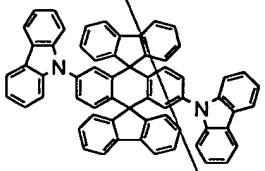

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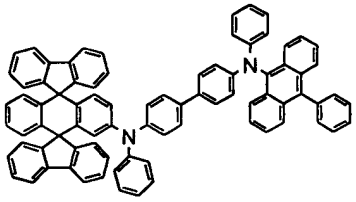
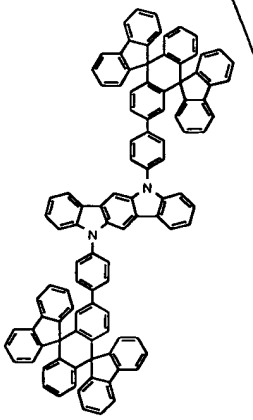
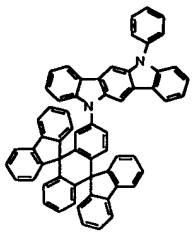


Chemical Compound 408



Chemical Compound 409



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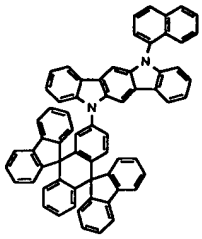
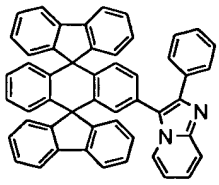
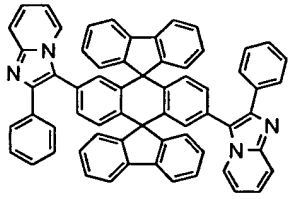


Chemical Compound 411



Chemical compound 412



Chemical Compound 413.

49. The solid deposition of Claim 29, wherein the one or more double-spiro compounds have a band gap corresponding to visible light emission.

50. The solid deposition of Claim 49, wherein the band-gap for the visible light emission is from about 1.8 eV to about 3.5 eV.

51. The solid deposition of Claim 49, wherein the band-gap corresponds to blue, green or red light emission.

52. The solid deposition of Claim 29, wherein the one or more double-spiro compounds have a hole-transporting property.

53. The solid deposition of Claim 29, wherein hole mobility in the one or more double-spiro compounds is about $1x10^{-7}$ cm^2/Vs or greater.

54. The solid deposition of Claim 29, wherein the one or more double-spiro compounds have a electron-transporting property.

55. The solid deposition of Claim 29, wherein electron mobility in the one or more double-spiro compounds is about $1x10^{-7}$ cm^2/Vs or greater.

56. The solid deposition of Claim 29, wherein the one or more double-spiro compounds have a hole-injecting property.

57. The solid deposition of Claim 29, wherein the one or more double-spiro compounds have the highest occupied molecular orbital (HOMO) level from about -4.0 eV to about 6.0 eV.

58. The solid deposition of Claim 29, wherein the one or more double-spiro compounds have a electron-injecting property.

59. The solid deposition of Claim 29, wherein the one or more double-spiro compounds has the lowest unoccupied molecular orbital (LUMO) level from about -2.5 eV to about 4.0 eV.

60. A method of making the solid deposition of Claim 29, comprising:

providing a support; and

depositing one or more chemical compounds comprising one or more of the double-spiro compounds.

61. The method of Claim 60, wherein the depositing one or more chemical compounds comprises physical vapor deposition.

62. The method of Claim 60, wherein the depositing one or more chemical compounds comprises forming multiple layers of different compositions of the one or more chemical compounds.

63. An organic electroluminescent ("EL") device comprising:

an anode;

a cathode; and

the solid deposition of Claim 29 located between the anode and cathode, wherein the solid deposition comprises one or more layers comprising a light-emitting layer.

64. The organic EL device of Claim 63, wherein the light-emitting layer comprises the one or more double-spiro compounds having the band gap corresponding to visible light emission.

65. The organic EL device of Claim 64, wherein the band-gap for the visible light emission is from about 1.8 eV to about 3.5 eV.

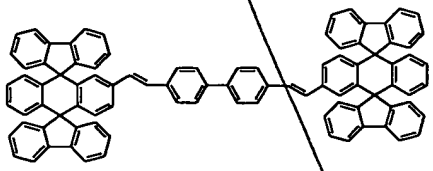
66. The organic EL device of Claim 63, wherein the light-emitting layer comprises one or more fluorescent or phosphorescent materials.

67. The organic EL device of Claim 63, wherein the organic EL device is supported by a substrate, and wherein the substrate contacts either the anode or the cathode.

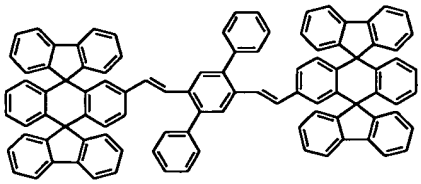
68. The organic EL device of Claim 63, wherein the one or more layers comprise at least one material having one or more properties selected from the group consisting of

electron injection, electron transportation, light emission, hole transportation, and hole injection.

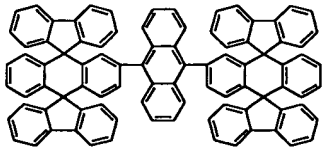
69. The organic EL device of Claim 63, wherein the light-emitting layer comprises one or more selected from the group consisting of Chemical Compounds 100-137, 200-222, and 400-413 as shown below:



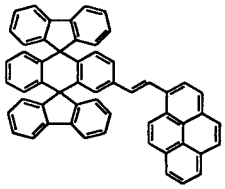
Chemical Compound 100



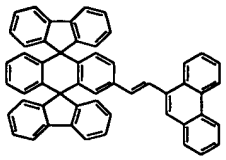
Chemical Compound 101



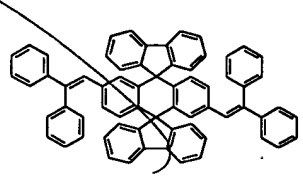
Chemical Compound 102



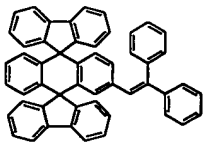
Chemical Compound 103



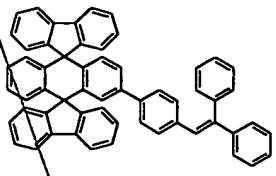
Chemical Compound 104



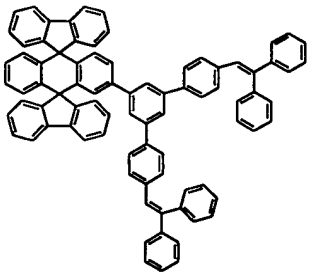
Chemical Compound 105



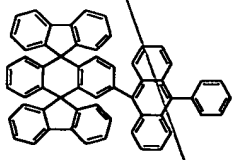
Chemical Compound 106



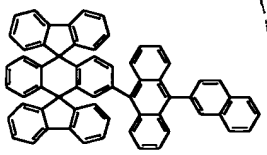
Chemical Compound 107



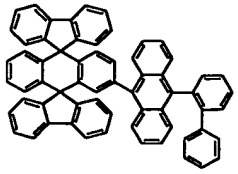
Chemical Compound 108



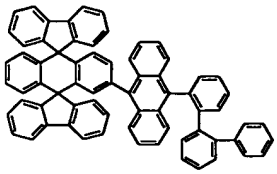
Chemical Compound 109



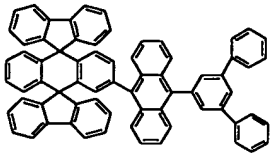
Chemical Compound 110



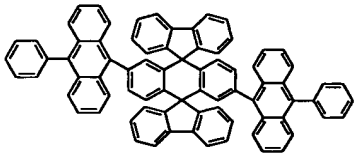
Chemical Compound 111



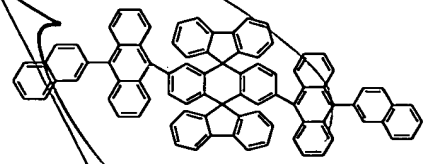
Chemical Compound 112



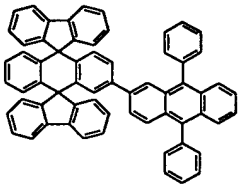
Chemical Compound 113



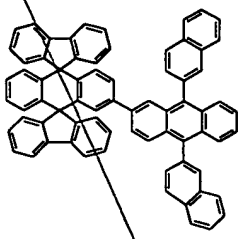
Chemical Compound 114



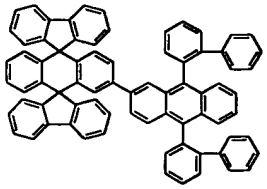
Chemical Compound 115



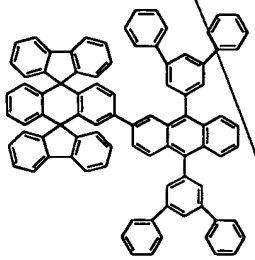
Chemical Compound 116



Chemical Compound 117



Chemical Compound 118



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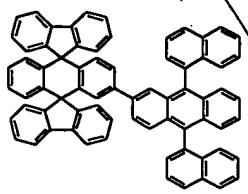
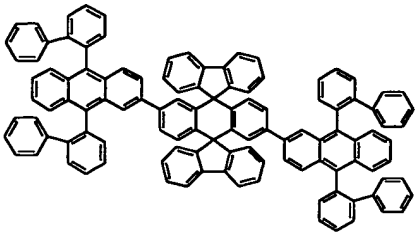


Chemical Compound 120



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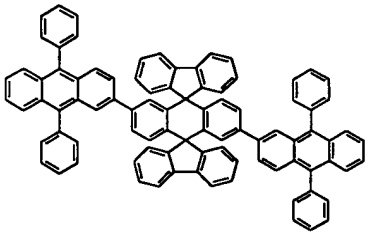
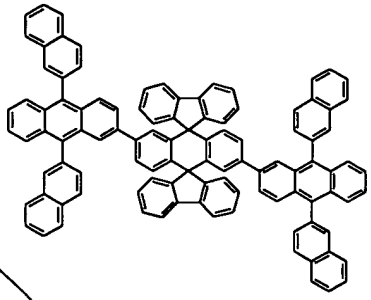


Chemical Compound 122



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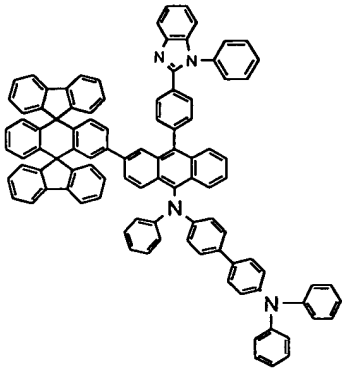

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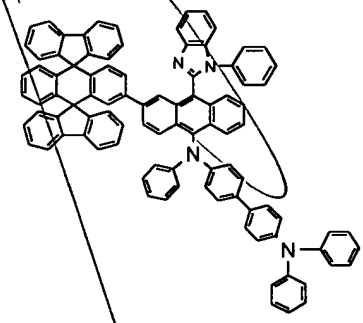

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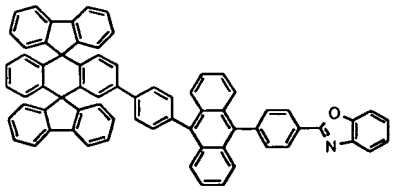

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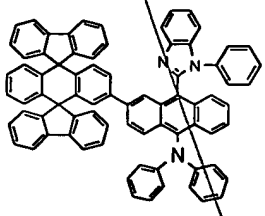

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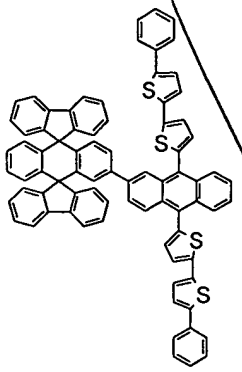

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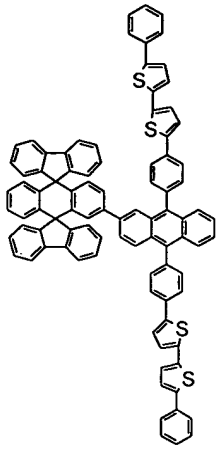

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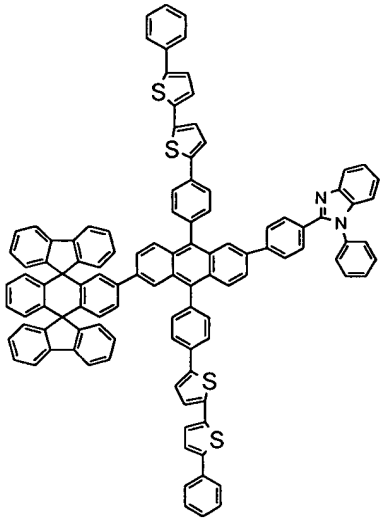

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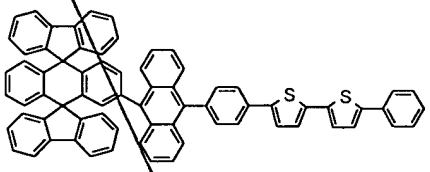

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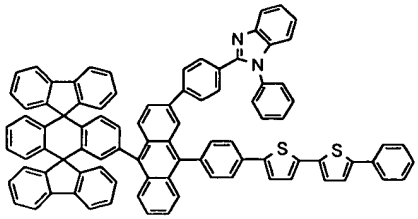

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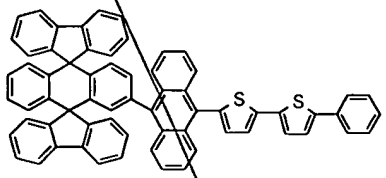

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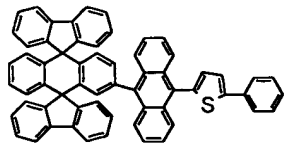

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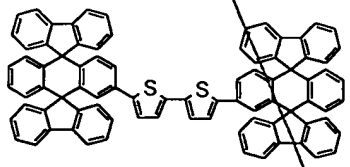
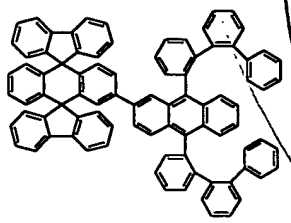


Chemical Compound 135



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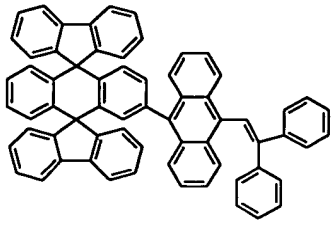
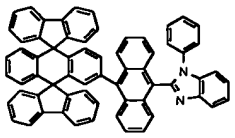
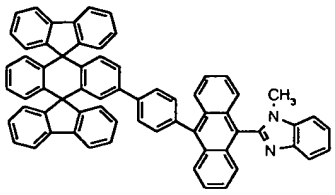


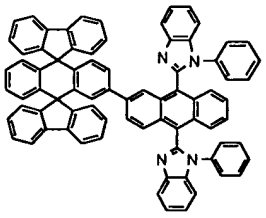
Chemical Compound 137



Chemical Compound 200



Chemical Compound 201



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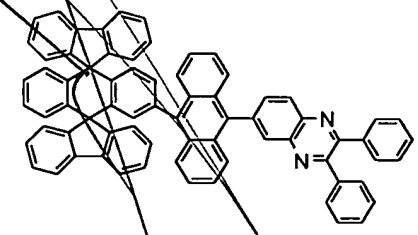

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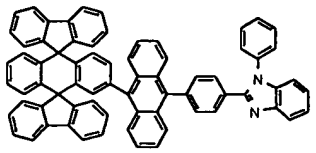

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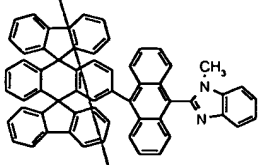

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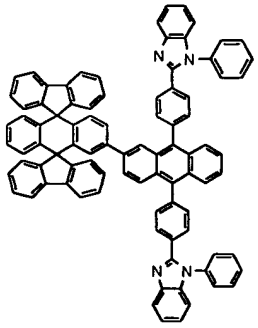

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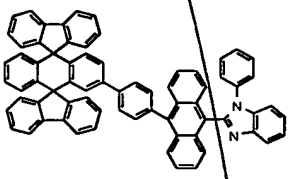

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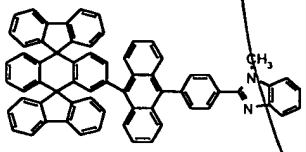

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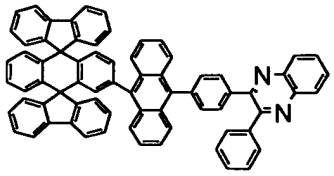

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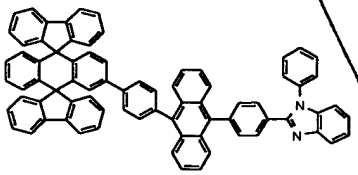

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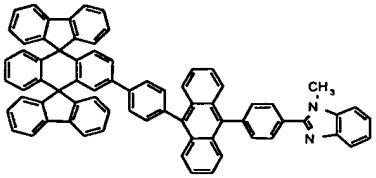

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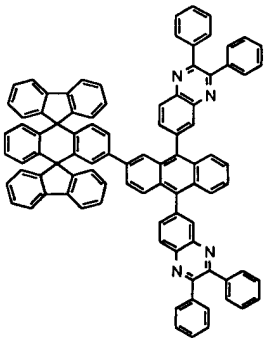
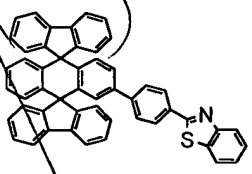
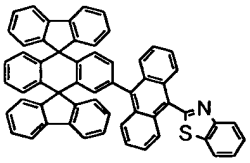


Chemical Compound 212



Chemical Compound 213



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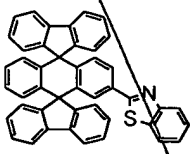
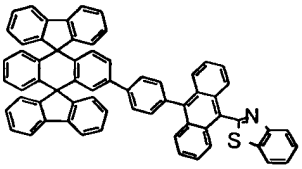


Chemical Compound 215



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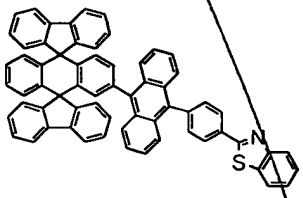

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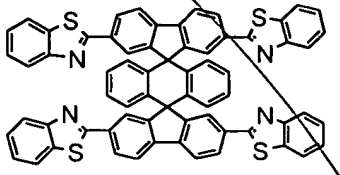
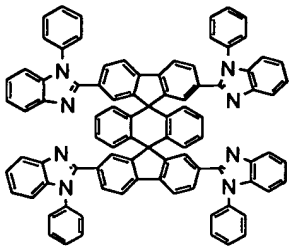
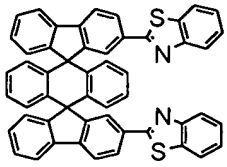


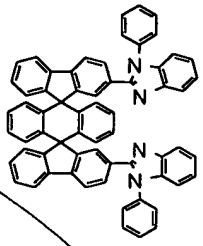
Chemical Compound 218



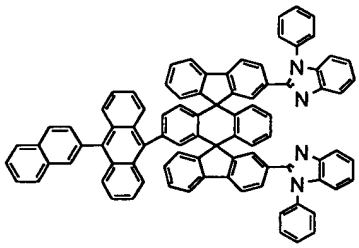
Chemical Compound 219



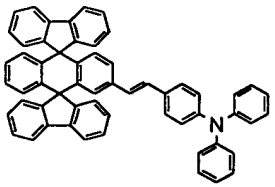
Chemical Compound 220



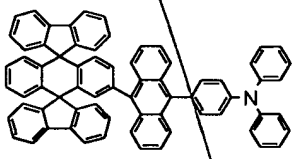
Chemical Compound 221



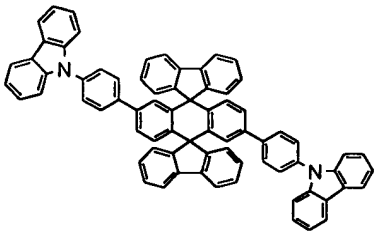
Chemical Compound 222



Chemical Compound 400



Chemical Compound 401



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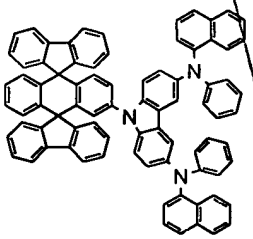
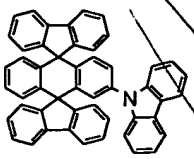
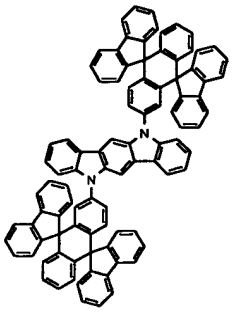


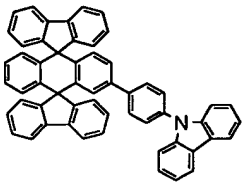
Chemical Compound 403



Chemical Compound 404



Chemical Compound 405



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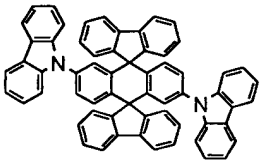

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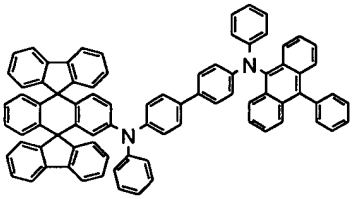
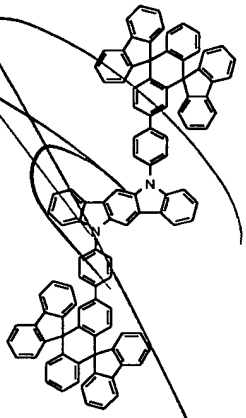
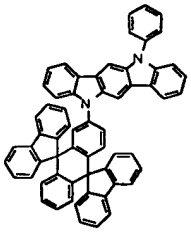


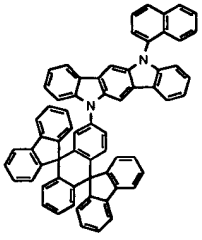
Chemical Compound 408



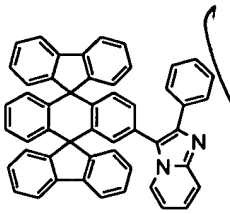
Chemical Compound 409



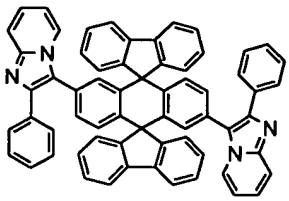
Chemical Compound 410



Chemical Compound 411



Chemical compound 412



Chemical Compound 413.

70. The organic EL device of Claim 69, wherein the light-emitting layer further comprises one or more non-double-spiro light-emitting compounds.

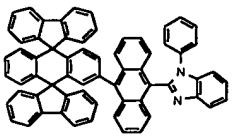
71. The organic EL device of Claim 70, wherein the non-double-spiro light-emitting compound has the band gap smaller than the band gap of the double-spiro compound.

72. The organic EL device of Claim 70, wherein the non-double-spiro light-emitting compound has the band gap greater than the band gap of the double-spiro compound.

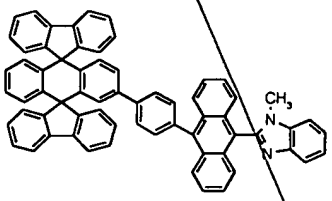
73. The organic EL device of Claim 70, wherein the non-double-spiro light-emitting compound is either fluorescent or phosphorescent compound.

74. The organic EL device of Claim 63, wherein the one or more layers comprise at least one of the electron-injecting and electron-transporting layers.

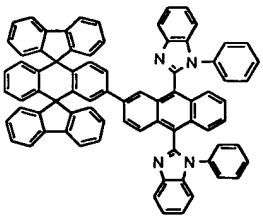
75. The organic EL device of Claim 74, wherein the at least one of the electron-injecting and electron-transporting layers comprises Chemical Compounds 200-222 as shown below:



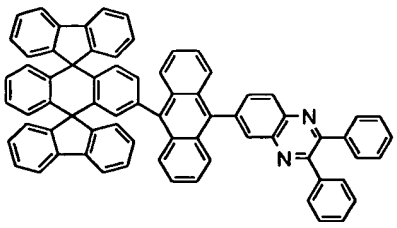
Chemical Compound 200



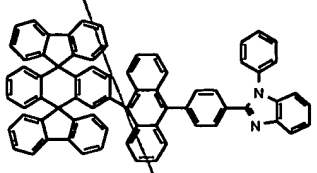
Chemical Compound 201



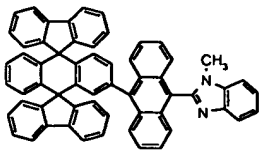
Chemical Compound 202



Chemical Compound 203



Chemical Compound 204



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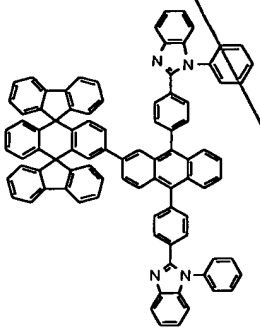

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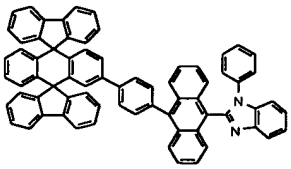

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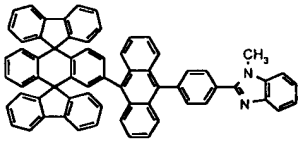

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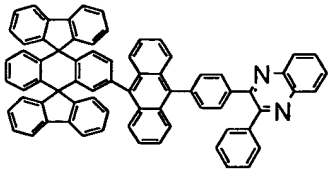

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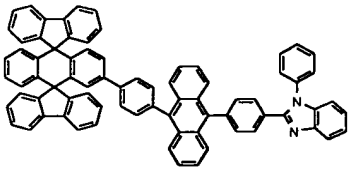

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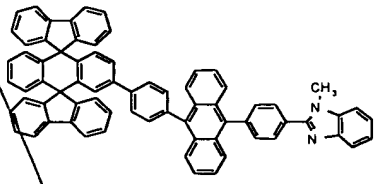

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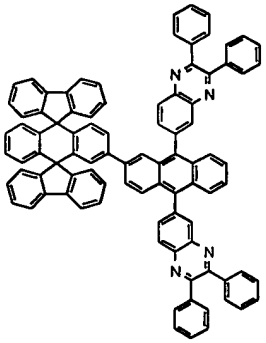

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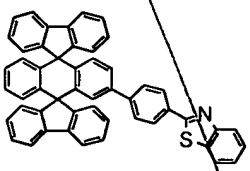

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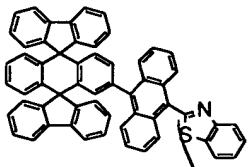

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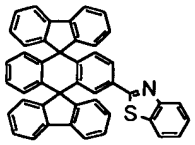

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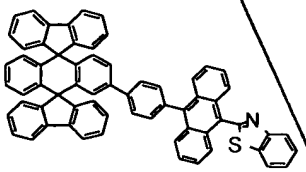

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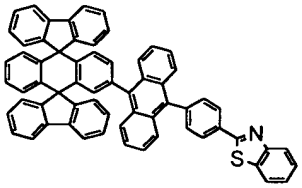

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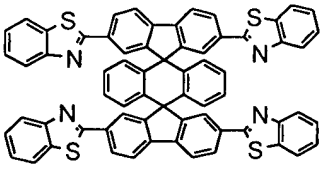

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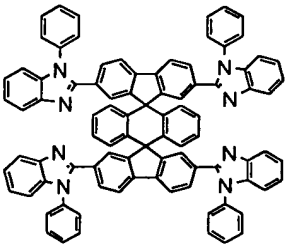

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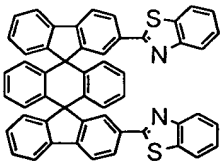

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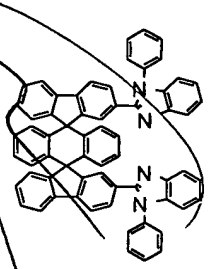
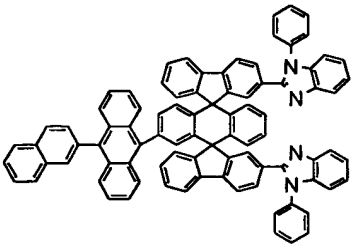


Chemical Compound 221

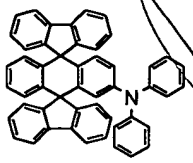


Chemical Compound 222.

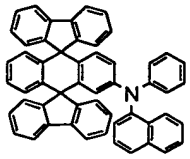
76. The organic EL device of Claim 63, wherein the one or more layers comprise at least one of the hole-injecting and hole-transporting layers.

77. The organic EL device of Claim 76, wherein the at least one of the hole-

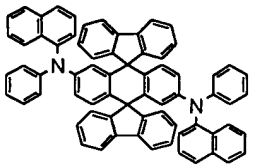
injecting and hole-transporting layers comprises Chemical Compounds 300-308 and 400-413 as shown below:



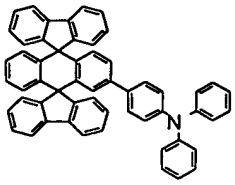
Chemical Compound 300



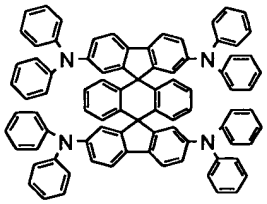
Chemical Compound 301



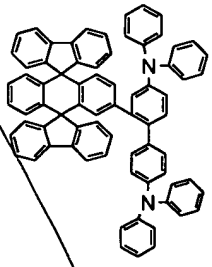
Chemical Compound 302



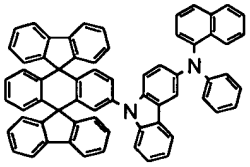
Chemical Compound 303



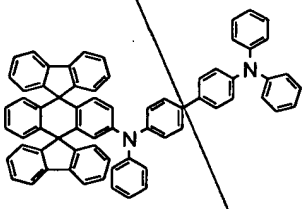
Chemical Compound 304



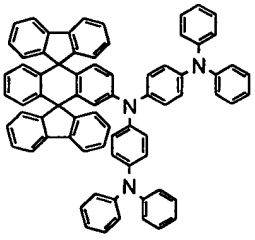
Chemical Compound 305



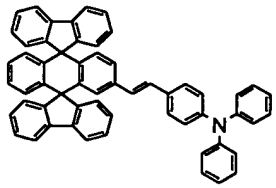
Chemical Compound 306



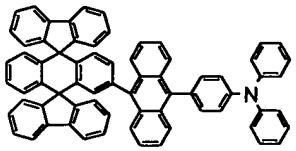
Chemical Compound 307



Chemical Compound 308



Chemical Compound 400



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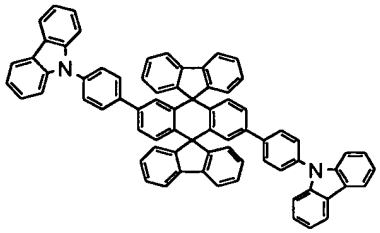

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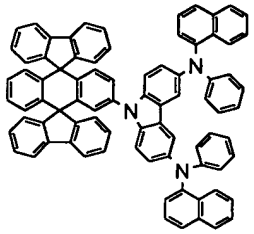

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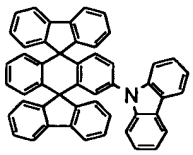
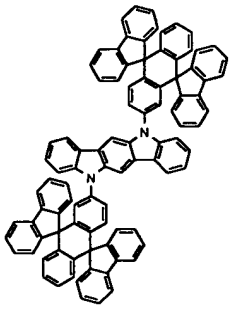
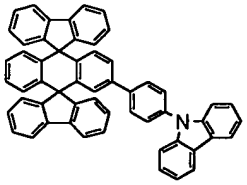


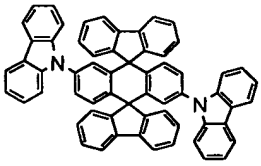
Chemical Compound 404



Chemical Compound 405



Chemical Compound 406



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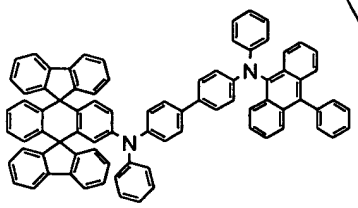

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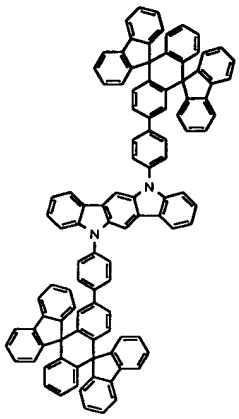
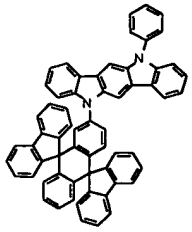
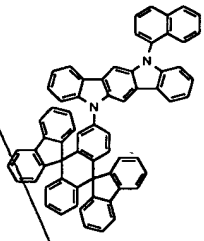


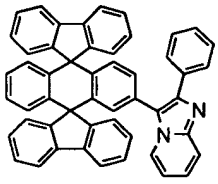
Chemical Compound 409



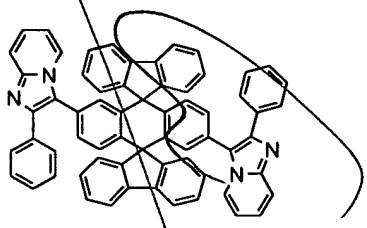
Chemical Compound 410



Chemical Compound 411



Chemical compound 412



Chemical Compound 413.

78. An electronic device comprising a display, wherein the display comprises the organic EL device of Claim 63.

79. A method of generating visible light from the organic EL device of Claim 63, comprising:

applying electric power between the anode and cathode of the device;

the cathode injecting electrons toward the light-emitting layer;

the anode injecting holes toward the light-emitting layer; and

allowing recombination of at least part of the injected electrons and holes in the light-emitting layer, thereby generating visible light from the light-emitting layer.

80. The method of Claim 79, wherein the light-emitting layer comprises the one

or more double-spiro compounds having a light-emitting property.

81. The method of Claim 80, wherein the light-emitting layer further comprises one or more non-double-spiro light-emitting compounds.

82. The method of Claim 79, wherein the one or more layers comprises the double-spiro compound having one or more properties selected from the group consisting of visible light emission, electron transportation, electron injection, hole transportation, and hole injection.

83. A method of manufacturing the organic EL device of Claim 63, the method comprising:

providing a substrate;

forming a first conductive layer;

depositing the one or more chemical compounds comprising one or more of the double-spiro compounds so as to form the solid deposition comprising the light-emitting layer; and

forming a second conductive layer, wherein either of the first and second conductive layers corresponds to the anode or cathode.

84. The method of Claim 83, wherein the formation of the light-emitting layer comprises depositing one or more of the double-spiro compounds having a light-emitting property.

85. The method of Claim 84, wherein the formation of the light-emitting layer comprises co-depositing one or more non-double-spiro light-emitting compounds.

86. The method of Claim 83, wherein the deposition of the one or more chemical compounds further comprises forming layers having one or more functions selected from the group consisting of visible light emission, electron transportation, electron injection, hole transportation, and hole injection.

87. The method of Claim 86, wherein the formation of the layers having one or more functions comprises depositing one or more of the double-spiro compounds.

88. The method of Claim 86, wherein the formation of the layers having one or more functions comprises depositing one or more non-double-spiro compounds.